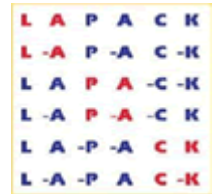


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DLAMCH stalls when called from Delphi



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Author

Esquivel

Joined: 02 Jul 2008
Posts: 2

Message

Posted: Wed Jul 02, 2008 9:33 am Post subject: DLAMCH stalls when called from Delphi



Hi folks!

I'm currently working on a Delphi program calling functions from LAPACK.dll which works quite well in general, but I have encountered a severe problem: As soon as the function DLAMCH from LAPACK.dll is called, the execution stalls (remember: DLAMCH determines double precision machine parameters).

I have figured out up to now that DLAMCH stalls in subroutine DLAMC1 which determines the machine parameters given by BETA, T, RND, and IEEE1 (i.e. BETA = base of the machine, T = number of BETA digits in the mantissa, RND = does rounding or chopping occur in addition?, IEEE1 = is rounding done in IEEE style?). DLAMC1 does not terminate in the very last while loop which is supposed to compute the mantissa T.

When I'm calling DLAMCH from LAPACK.dll out of a C program everything works fine. Has anybody a clue what the reason may be and how this problem could be solved?

Thanks in advance!

Sandro



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Esquivel

Joined: 02 Jul 2008
Posts: 2

Posted: Tue Jul 08, 2008 8:14 am Post subject: Solution to the problem



Ok, in the meantime I have figured out the problem and its (possibly hacking) solution...

First, the computation of the mantissa of floating point numbers fails when DLAMC1 is called from Delphi. I do not know until now why it does so but including a single `printf("")` right in front of the last while loop computing the mantissa length mysteriously solves the problem... Maybe it is a synchronisation problem which is solved by the minimal delay which is caused

by evaluating `printf("")`. However, this problem could only be solved by me by recompiling the LAPACK.dll from CLAPACK and inserting said `printf("")`.

Second, Delphi catches floating point exceptions by default while MS Visual Studio suppresses them for instance. One of these is the "Invalid Floating Point Operation" exception which is raised when NaN values occur which is not desirable in all cases, especially for LAPACK routines! Moreover, overruns of the FPU are considered as exception while DLAMCH explicitly aims at producing such an overrun in order to compute floating point parameters! So FPU exceptions have to be turned off before calling a LAPACK routine (and possibly turned back on afterwards) by calling

Code:

```
Set8087CW($133F);
```

from the Delphi program.

Hope it might help one or the other who struggles with Delphi and LAPACK...

Sandro

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